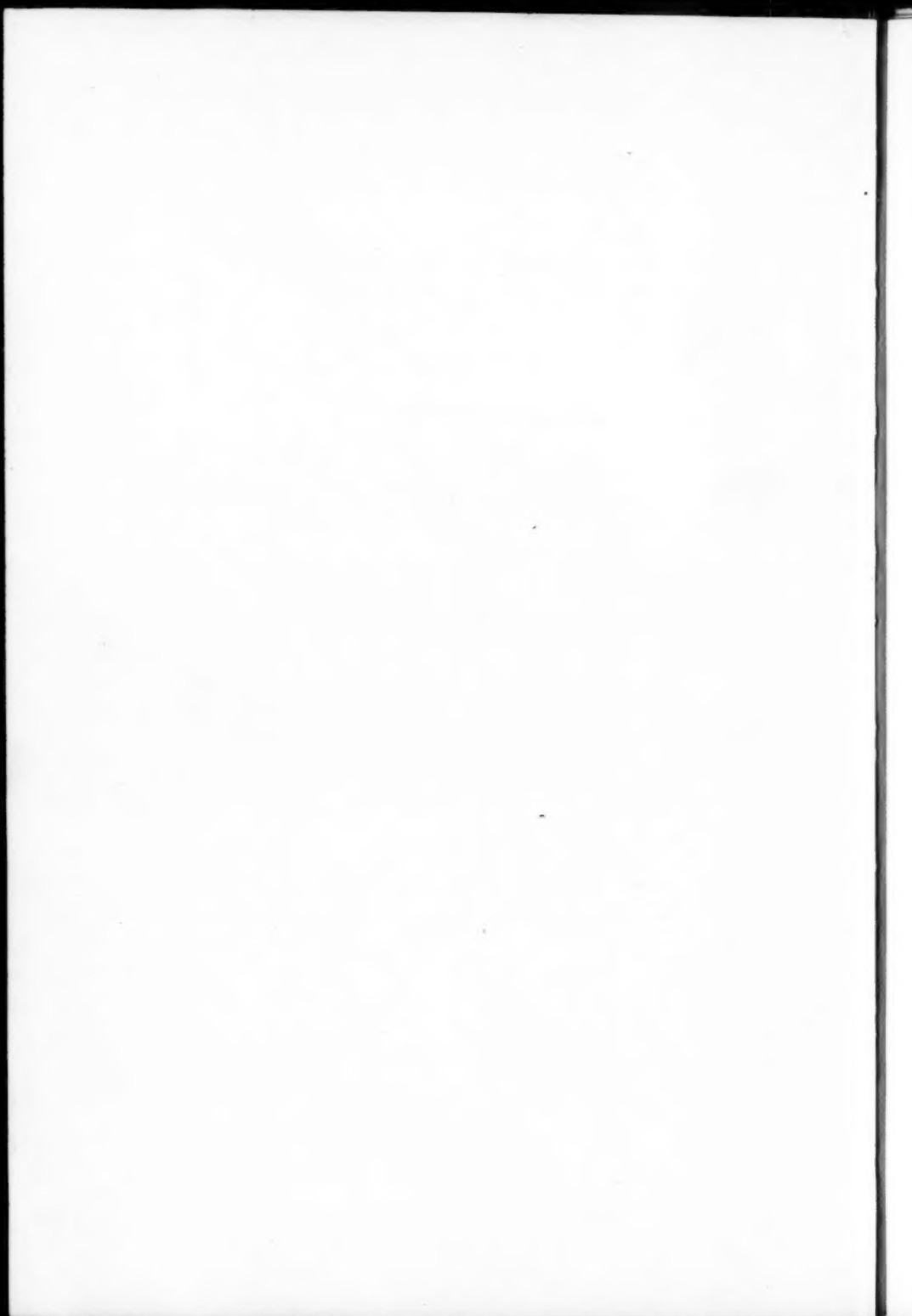


BULLETIN
of the
**AMERICAN ASSOCIATION OF
PETROLEUM GEOLOGISTS**



BULLETIN of the AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS

R. D. REED, *Editor*

J. P. D. HULL, *Acting Editor*

REGIONAL ASSOCIATE EDITORS

GENERAL—

Geology:

Geophysics:

UNITED STATES—

Appalachian and Eastern:

North Mid-Continent:

Central Mid-Continent:

South Mid-Continent:

Western

Eastern

Gulf Coast:

Rocky Mountains:

Pacific Coast:

FOREIGN COUNTRIES—

General:

Canada:

Europe and Mediterranean:

K. C. HEALD, The Gulf Companies, Frick Building Annex, Pittsburgh, Pennsylvania

B. B. WEATHERDY, Geophysical Research Corporation, Box 2040, Tulsa, Oklahoma

W. A. THOMAS, The Pure Oil Company, 402 Second National Bank Building, Saginaw, Michigan

HUGH D. MISER, U. S. Geological Survey, Washington, D. C.

ANTHONY FOLGER, Gypsy Oil Company, 1107 Union National Bank Building, Wichita, Kansas

THERON WASSON, Room 2308, 35 E. Wacker Drive, Chicago, Illinois

FRANK C. GREENE, 1434 South Cincinnati Avenue, Tulsa, Oklahoma

ROBERT H. DOTT, 1521 South Yorktown Avenue, Tulsa, Oklahoma

R. E. RETTGER, Sun Oil Company, San Angelo, Texas

M. G. CHENEY, Coleman, Texas

C. L. MOODY, Ohio Oil Company, Giddens-Lane Building, Shreveport, Louisiana

DONALD C. BARTON, Petroleum Building, Houston, Texas

W. ARMSTRONG PRICE, Box 112, Corpus Christi, Texas

R. CLARE COFFIN, 931 First National Bank Building, Denver, Colorado

W. S. W. KEW, Standard Oil Company, 524 Standard Oil Building, Los Angeles, California

MARGARET C. COBB, Room 2703, 120 Broadway, New York City

B. F. HAKE, Nordon Corp., Ltd., 515 Lougheed Building, Calgary, Canada

W. P. HAYNES, 68 Pall Mall, London, S.W.1, England

VOLUME 16 JANUARY—DECEMBER 1932

PART 2

PAGES 629-1378

ASSOCIATION HEADQUARTERS
OFFICE OF THE BUSINESS MANAGER
BOX 1852, TULSA, OKLAHOMA

THE AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS, INC.

OFFICERS FOR THE YEAR ENDING MARCH, 1933

FREDERIC H. LAHEE, *President*
Dallas, Texas

LOVIC P. GARRETT, *Past-President*
Houston, Texas

ROBERT J. RIGGS, *Vice-President*
Bartlesville, Oklahoma

WILLIAM B. HEROV, *Secretary-Treasurer*, New York, N. Y.

R. D. REED, *Editor*, Los Angeles, California

DISTRICT REPRESENTATIVES

(Representatives' terms expire immediately after annual meetings of the years shown in parentheses.)

- | | |
|---|--|
| Amarillo:
J. D. Thompson, Jr. (1934), Amarillo, Tex. | New York:
H. J. Wasson (1933), New York, N. Y. |
| Appalachian:
L. G. Huntley (1933), Pittsburgh, Pa. | Pacific Coast: Harold W. Hoots (1933), Los Angeles, Calif. |
| Canada:
Theodore A. Link (1933), Calgary, Canada | Harry R. Johnson (1933), Los Angeles, Calif. |
| Capital:
Arthur A. Baker (1934), Washington, D. C. | Walter A. English (1934), Los Angeles, Calif. |
| Dallas:
L. W. Orynski (1934), Dallas, Tex. | Rocky Mountains:
R. Clare Coffin (1933), Denver, Colo. |
| East Oklahoma:
W. R. Hamilton (1933), Tulsa, Okla. | San Antonio:
Ed. W. Owen (1933), San Antonio, Tex. |
| R. S. Knappen (1933), Tulsa, Okla. | Shreveport:
S. C. Stathers (1933), Shreveport, La. |
| Albert L. Beekly (1934), Tulsa, Okla. | South America:
C. A. Baird (1933), Maracaibo, Venezuela, S. A. |
| Fort Worth:
H. B. Fuqua (1933), Fort Worth, Tex. | So. Permian Basin:
Joseph E. Moreo (1933), Midland, Tex. |
| Great Lakes:
Theron Wasson (1933), Chicago, Ill. | West Oklahoma:
A. H. Richards (1933), Oklahoma City, Okla. |
| Houston:
John F. Weinzierl (1933), Houston, Tex. | Wichita:
L. W. Kesler (1933), Wichita, Kan. |
| Mexico:
S. A. Grogan (1933), Tampico, Mexico | Wichita Falls:
William M. Nicholls (1934), Wichita Falls, Tex. |
| New Mexico:
J. B. Headley (1933), Roswell, New Mexico | |

DIVISION (PALEONTOLOGY AND MINERALOGY) REPRESENTATIVES

Herschel L. Driver (1933), Los Angeles, Calif. Norman L. Thomas (1933), Fort Worth, Tex.

OFFICERS FOR THE YEAR ENDING MARCH, 1932

President: LOVIC P. GARRETT

Past-President: SIDNEY POWERS

First Vice-President: L. COURTNEY DECIUS

Second Vice-President in Charge of Finances: FRANK RINKER CLARK

Third Vice-President in Charge of Editorial Work: FREDERIC H. LAHEE

COPYRIGHT 1932 BY
THE AMERICAN ASSOCIATION OF
PETROLEUM GEOLOGISTS

PUBLISHED
MONTHLY

Composed and Printed by
The Mid-West Printing Company
Tulsa, Oklahoma

and
George Banta Publishing Company
Menasha, Wisconsin, U.S.A.

CONTENTS OF VOLUME 16

PART 2

NUMBER 7

BURIED AND RESURRECTED HILLS OF CENTRAL OZARKS. C. L. Dake and Josiah Bridge	629
GEOLOGIC INTERPRETATIONS FROM ROTARY WELL CUTTINGS. Robert M. Whiteside	653
GEOLOGY OF PART OF FINGER LAKES REGION, NEW YORK. I. William Fox	675
REGIONAL STRUCTURE OF CRETACEOUS ON EDWARDS PLATEAU OF SOUTHWEST TEXAS. Lon D. Cartwright, Jr.	691
GEOLOGICAL NOTES	
High Island Dome, Galveston County, Texas, <i>M. T. Halbouty</i>	701
Fox Hills Formation, Northeastern Colorado, <i>T. S. Lovering,</i> <i>H. A. Aurand, C. S. Lavington, and J. H. Wilson</i>	702
DISCUSSION	
Comment on Petroleum of the United States and Possessions, <i>H. B. Goodrich</i>	704
REVIEWS AND NEW PUBLICATIONS	706
THE ASSOCIATION ROUND TABLE	709
Executive Committee Meeting, Tulsa, Oklahoma, June 1, 1932	710
MEMORIAL	
Charles Ross Schroyer, <i>R. E. Shult</i>	712
AT HOME AND ABROAD	713

NUMBER 8

SYMPOSIUM ON OCCURRENCE OF PETROLEUM IN IGNEOUS AND METAMORPHIC ROCKS	
EDITOR'S FOREWORD. Sidney Powers	717
LIST OF COUNTRIES, STATES, AND PROVINCES MENTIONED IN TEXT	718
NATURE AND ORIGIN OF OCCURRENCES OF OIL, GAS, AND BITUMEN IN IGNEOUS AND METAMORPHIC ROCKS. Sidney Powers and Fred- erick G. Clapp	719
NATURAL GAS, SALT, AND GYPSUM IN PRE-CAMBRIAN ROCKS AT ED- WARDS, NEW YORK. John S. Brown	727
POSSIBLE ORIGIN OF GRAPHITE IN SOME ANCIENT QUARTZITES, SLATES, AND SCHISTS IN VIRGINIA. Justus H. Cline	736

BITUMEN IN NONESUCH FORMATION OF KEWEENAWAN SERIES OF NORTHERN MICHIGAN. Charles G. Carlson	737
OIL FIELDS IN IGNEOUS ROCKS IN COASTAL PLAIN OF TEXAS. E. H. Sellards	741
OCCURRENCE OF OIL IN CRYSTALLINE ROCKS OF COLORADO. F. M. Van Tuyland R. L. McLaren	769
OCCURRENCE OF OIL IN METAMORPHIC ROCKS OF SAN GABRIEL MOUNTAINS, LOS ANGELES COUNTY, CALIFORNIA. Arthur B. Brown and W. S. W. Kew	777
OIL SEEPAGES IN BELT SERIES OF ROCKY MOUNTAINS NEAR INTERNATIONAL BOUNDARY. Theodore A. Link	786
OCCURRENCE OF BITUMEN IN QUEEN CHARLOTTE ISLANDS, BRITISH COLUMBIA. Robert M. Kleinpell	797
OIL ASSOCIATED WITH IGNEOUS ROCKS IN MEXICO. E. DeGolyer	799
OCCURRENCE OF OIL IN IGNEOUS ROCKS OF CUBA. J. Whitney Lewis	809
OIL SEEPAGES AND OIL PRODUCTION ASSOCIATED WITH VOLCANIC PLUGS IN MENDOZA PROVINCE, ARGENTINA. F. H. Lahee	819
OIL IN LIMAGNE AREA, FRANCE. L. Barrabé	825
TARANAKI OIL FIELD, NEW ZEALAND. Frederick G. Clapp	833
NOTES ON MINOR OCCURRENCES OF OIL, GAS, AND BITUMEN, WITH IGNEOUS AND METAMORPHIC ROCKS. By various authors, compiled by Sidney Powers	837

 NUMBER 9

SYMPOSIUM ON RESERVOIR CONDITIONS IN OIL AND GAS POOLS	
INTRODUCTION. Frederic H. Lahee	861
CHARACTER OF PRODUCING SANDSTONES AND LIMESTONES OF WYOMING AND MONTANA. John G. Bartram	864
WATER ENCROACHMENT IN BARTLESVILLE SAND POOLS OF NORTHEASTERN OKLAHOMA AND ITS BEARING ON EAST TEXAS RECOVERY PROBLEM. D. R. Snow	881
GEOLOGICAL APPLICATION OF BOTTOM-HOLE PRESSURES. C. V. Millikan	891
INTERPRETATION OF BOTTOM-HOLE PRESSURES IN EAST TEXAS OIL FIELD. E. V. Foran	907
IMPROVED TECHNIQUE FOR DETERMINATION OF DENSITIES AND POROSITIES. H. R. Brankstone, W. B. Gealy, and W. O. Smith	915
FACTORS INVOLVED IN SEGREGATION OF OIL AND GAS FROM SUBTERRANEAN WATER. Jan Versluys	924
GEOLOGICAL NOTES	
Probable Age of Aptychus-Bearing Formations of Cuba, J. Whitney Lewis	943

CONTENTS OF VOLUME 16

vii

REVIEWS AND NEW PUBLICATIONS	945
THE ASSOCIATION ROUND TABLE	952
Supplementary Membership List	952
AT HOME AND ABROAD	954

NUMBER 10

GEOLOGY AND DEVELOPMENT OF OKLAHOMA CITY FIELD, OKLAHOMA COUNTY, OKLAHOMA. D. A. McGee and W. W. Clawson, Jr.	957
PRORATION AT OKLAHOMA CITY, OKLAHOMA. Harold S. Thomas	1021
GENESIS OF OIL BY HIGH RADIAL AXIAL PRESSURE. Kunio Uwatoko	1029
GEOLOGICAL NOTES	
Rule of Density of Oils, <i>Karl Krejci</i>	1038
DISCUSSION	
Time-Equivalent Versus Lithologic Extension of Formations, <i>F. A. Melton, J. Edmund Eaton, F. A. Melton</i>	1039
REVIEWS AND NEW PUBLICATIONS	1045
THE ASSOCIATION ROUND TABLE	1047
Certificate of Incorporation of The American Association of Petroleum Geologists	1047
Constitution and By-Laws	1049
AT HOME AND ABROAD	1058

NUMBER 11

GEOLOGY AND MINING OF PETROLEUM IN POLAND. Karol Bohdanowicz	1061
OIL AND GAS POSSIBILITIES OF FRANCE. Frederick G. Clapp	1092
OCCURRENCE AND PRODUCTION OF PETROLEUM IN GERMANY. W. A. J. M. van Waterschoot van der Gracht	1144
SEARCH FOR OIL IN PARMA DISTRICT, WESTERN ITALY. M. Anelli and A. Belluigi	1152
REVIEWS AND NEW PUBLICATIONS	1160
THE ASSOCIATION ROUND TABLE	1164
AT HOME AND ABROAD	1166

NUMBER 12

MAGNETIC RESURVEY OF OKLAHOMA CITY FIELD. O. C. Clifford, Jr.	1171
MAGNETIC VECTOR STUDY OF REGIONAL AND LOCAL GEOLOGIC STRUCTURE IN PRINCIPAL OIL STATES. W. P. Jenny	1177
APPLICATION OF REFLECTION SEISMOGRAPH. Eugene McDermott	1204

USE OF RECORD CHARACTER IN INTERPRETING RESULTS AND ITS EFFECT ON DEPTH CALCULATION IN REFRACTION WORK. T. L. Allen	1212
SEISMOLOGICAL DISCOVERY AND PARTIAL DETAIL OF VERMILION BAY SALT DOME, LOUISIANA. E. E. Rosaire and O. C. Lester, Jr. . .	1221
SEISMIC WEATHERED OR AERATED SURFACE LAYER. O. C. Lester, Jr. .	1230
ACCURACY OF DETERMINATION OF RELATIVE GRAVITY BY TORSION BALANCE. Donald C. Barton	1235
CURVATURE OF EQUIPOTENTIAL SURFACES. M. M. Slotnick . . .	1250
ADVANCES IN TECHNIQUE AND APPLICATION OF RESISTIVITY AND POTENTIAL-DROP-RATIO METHODS IN OIL PROSPECTING. C. A. Heiland	1260
USE OF GEOELECTRIC METHODS IN SEARCH FOR OIL. O. H. Gish . .	1337
CORRELATION BETWEEN RADON AND HEAVY MINERAL CONTENT OF SOILS. R. W. Clark and Holbrook G. Botset	1349
THE ASSOCIATION ROUND TABLE	1357
INDEX TO VOLUME 16	1358

ERRATA

Page 699, line 17: "platform" should be *Plateau*.

Page 701, paragraph 2, line 8: "28" should be 22.

Page 888, line 9: "800,000" should be 800,000,000.